COSEWIC
Status Appraisal Summary

on the

Pacific Gopher Snake
Pituophis catenifer catenifer

in Canada

EXTIRPATED
2012

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

COSEWIC status appraisal summaries are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

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Également disponible en français sous le titre Sommaire du statut de l'espèce du COSEPAC sur la Couleuvre à nez mince du Pacifique (*Pituophis catenifer catenifer*) au Canada.

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COSEWIC
Assessment Summary

Assessment Summary – May 2012

Common name
Pacific Gopher Snake

Scientific name
Pituophis catenifer catenifer

Status
Extirpated

Reason for designation
This large snake, found in extreme southwestern British Columbia, has not been observed in the Canadian wild in more than 50 years.

Occurrence
British Columbia

Status history
Designated Extirpated in May 2002. Status re-examined and confirmed in May 2012.

COSEWIC
Status Appraisal Summary

Pituophis catenifer catenifer
Pacific Gopher Snake — Couleuvre à nez mince du Pacifique
Jurisdictions: British Columbia

Current COSEWIC Assessment:

Status category:
☒ XT ☐ E ☐ T ☐ SC

Date of last assessment: May 2002
Reason for designation at last assessment:
There have been no sightings of this subspecies in almost 50 years.

Criteria applied at last assessment:
Not applicable.

If earlier version of criteria was applied[1], provide correspondence to current criteria:

Recommendation: Update to the status report NOT required (wildlife species' status category remains unchanged)

Reason:
☒ sufficient information to conclude there has been no change in status category
☐ not enough additional information available to warrant a fully updated status report

Evidence (indicate as applicable): No confirmed sightings have been received since 1957, despite ongoing related wildlife surveys and public awareness efforts (Govindarajulu pers. comm. 2011; Ramsay pers. comm. 2011; Welstead pers. comm. 2011).

Wildlife species:
Change in eligibility, taxonomy or designatable units: yes ☐ no ☒

Explanation:

No changes in eligibility, taxonomy or designatable units have occurred since the 2002 update. Debate continues over the number of species in the genus *Pituophis* (Rodriguez-Robles and de Jesus-Escobar 2000) with molecular evidence indicating the existence of an eastern clade and a western clade (which contains all Canadian Gopher Snakes). Most recent literature retains the species *P. catenifer* and subspecies *P. c. catenifer* (Ernst and Ernst 2003; Matsuda *et al.* 2006; Crother *et al.* 2011).

[1] An earlier version of the quantitative criteria was used by COSEWIC from October 1999 to May 2001 and is available on the COSEWIC website: http://www.cosewic.gc.ca/eng/sct0/original_criteria_e.cfm

Range:

Change in Extent of Occurrence (EO):	yes ☐ no ☒
Change in Area of Occupancy (AO):	yes ☐ no ☒
Change in number of known or inferred current locations:	yes ☐ no ☒
Significant new survey information	yes ☐ no ☒

Explanation:

EO, AO, and the number of known or inferred current locations remain at zero. No significant new survey information is available (but see **Population Information**).

Population Information:

Change in number of mature individuals:	yes ☐ no ☒
Change in total population trend:	yes ☐ no ☒
Change in severity of population fragmentation:	yes ☐ no ☒
Change in trend in area and/or quality of habitat:	yes ☐ no ☒
Significant new survey information	yes ☐ no ☒

Explanation:

No targeted surveys have been conducted for the subspecies in its historical range (Govindarajulu pers. comm. 2011; Welstead, pers. comm. 2011), though surveys for other species in the general vicinity where Pacific Gopher Snakes were previously recorded have been conducted with no confirmed observations (Ramsay pers. comm. 2011; Welstead pers. comm. 2011). These surveys include those for the Sharp-tailed Snake (*Contia tenuis*) on a number of the Gulf Islands, including Galiano, by Engelstoft and Ovaska from 1997 through 2008 (Engelstoft 2005, 2006a, 2006b, 2007a, 2007b; Engelstoft and Ovaska 1997, 1998, 1999, 2008). Occasional anecdotal sightings are reported but they either remain unconfirmed or are suspected to be escaped pets (Welstead pers. comm. 2011).

Threats:

Change in nature and/or severity of threats: yes ☐ no ☒

Explanation:

No new changes in the nature and/or severity of threats different from those already described in the 2002 assessment.

Protection:

Change in effective protection: yes ☐ no ☒

Explanation:

No changes in effective protection for the subspecies. It remains listed as extirpated federally and provincially in British Columbia.

Rescue Effect:

Evidence of rescue effect: yes ☐ no ☒

Explanation:

No evidence of rescue effect is available. Habitat may not be suitable for reintroduced animals (COSEWIC 2002), and a large geographical gap between the species' putative range in BC and the next closest extant population in northwest Oregon (Rodriguez-Robles and de Jesus-Escobar 2000) would greatly impede natural immigration to Canada.

Quantitative Analysis:

Change in estimated probability of extirpation: yes ☐ no ☒

Details:
No quantitative analysis is available.

Summary and Additional Considerations:

In Canada, the Pacific Gopher Snake is known from a 1957 record on Galiano Island (Wright and Wright 1957). Additionally, a specimen was reported from along the Canada/U.S. border in Sumas, Washington, in the 1800s (Matsuda *et al.* 2006). Although Matsuda *et al.* (2006) considered the historical presence of the Pacific Gopher Snake in B.C. debatable, the subspecies no longer occurs in Washington (Washington Herp Atlas 2011) suggesting that the current lack of Canadian specimens reflects extirpation from the species' northern range. Recovery efforts for the subspecies *Pituophis catenifer deserticola* are ongoing in the southern interior of British Columbia, providing some framework for possible recovery of the Pacific subspecies (Southern Interior Reptile and Amphibian Recovery Team 2008). However, lack of data on the population biology of Pacific Gopher Snakes in Canada and declining habitat quality in the historical range make it unlikely that reintroduction would be attempted in the near future.

Author of Status Appraisal Summary: Scott Gillingwater

Consultations:

The following individuals were contacted via email.

*Denotes that information was provided by authority contacted.

Bishop, Christine. August 2011. Conservation Scientist. Environment Canada. Delta, B.C. (no response)

Gelling, Lea. August 2011. Zoologist. B.C. Conservation Data Centre, Ministry of Environment Victoria, B.C. (no response)

*Govindarajulu, Purnima. August 2011. Species At Risk Biologist. B.C. Ministry of Environment, Victoria, B.C.

Gregory, Patrick. August 2011. Professor, Department of Biology, University of Victoria, Victoria, B.C.

Low, Dave. August 2011. Ministry of Environment. B.C. (no response)

*Ramsay, Leah. August 2011. Program Zoologist. Conservation Data Centre, Ministry of Environment Victoria, B.C.

Stacey, Joanne. August 2011. Ecologist. Conservation Data Centre, Ministry of Environment Victoria, B.C. (no response)

Surgenor, John. August 2011. Ministry of Environment. B.C.

Waye, Heather. August 2011. Assistant Professor of Biology, University of Minnesota, Morris, MN, USA.

Webb, Debbie. August 2011. Conservation Data Specialist. Conservation Data Centre, Ministry of Environment Victoria, B.C. (no response)

*Welstead, Kym. August 2011. Species At Risk Biologist. Ministry of Environment. Surrey, B.C.

Sources of information:

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Engelstoft ,C. 2007a. Sharp-tailed Snake inventory and populations monitoring on DND, NRC, and Parks Canada properties on southern Vancouver Island and southern Gulf Islands. Unpublished report prepared for Pacific Forestry Centre, Victoria, BC.68p.

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TECHNICAL SUMMARY

Pituophis catenifer catenifer
Pacific Gopher Snake — Couleuvre à nez mince du Pacifique
Range of occurrence in Canada: British Columbia

Demographic Information

Generation time	8 yrs
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	No
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]	NA
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations].	NA
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].	NA
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any [10 years, or 3 generations] period, over a time period including both the past and the future.	NA
Are the causes of the decline clearly reversible and understood and ceased?	No
Are there extreme fluctuations in number of mature individuals?	No

Extent and Occupancy Information

Estimated extent of occurrence	0 km²
Index of area of occupancy (IAO) (Always report 2x2 grid value).	0 km²
Is the total population severely fragmented?	No
Number of locations*	0
Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?	No
Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?	No
Is there an [observed, inferred, or projected] continuing decline in number of populations?	No
Is there an [observed, inferred, or projected] continuing decline in number of locations*?	No
Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat?	No
Are there extreme fluctuations in number of populations?	No
Are there extreme fluctuations in number of locations*?	No
Are there extreme fluctuations in extent of occurrence?	No
Are there extreme fluctuations in index of area of occupancy?	No

* See Definitions and Abbreviations on COSEWIC website and IUCN 2010 for more information on this term.

Number of Mature Individuals (in each population)

Population	N Mature Individuals
Total	0

Quantitative Analysis

Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years].	NA

Threats (actual or imminent, to populations or habitats)

Not applicable.

Rescue Effect (immigration from outside Canada)

Status of outside population(s)? Nature Serve lists the Pacific Gopher Snake as G5T5 (NatureServe 2011).	
Is immigration known or possible?	Unlikely. The nearest extant populations of the subspecies are in northwest Oregon. Historically, the Pacific Gopher Snake may have occurred further north around Puget Sound, Washington, but it is extirpated from that state.
Would immigrants be adapted to survive in Canada?	Unknown
Is there sufficient habitat for immigrants in Canada?	Unknown
Is rescue from outside populations likely?	No

Current Status

COSEWIC: Designated Extirpated in May 2002 status re-examined in 2012 as extirpated.

Status and Reasons for Designation

Status:	**Alpha-numeric Code:**
Extirpated	Not applicable
Reasons for Designation: This large snake, found in extreme southwestern British Columbia, has not been observed in the Canadian wild in more than 50 years.	

Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Not applicable.
Criterion B (Small Distribution Range and Decline or Fluctuation): Not applicable.
Criterion C (Small and Declining Number of Mature Individuals): Not applicable.
Criterion D (Very Small or Restricted Total Population): Not applicable.
Criterion E (Quantitative Analysis): Not applicable.

COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

DEFINITIONS
(2012)

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

** Formerly described as "Not In Any Category", or "No Designation Required."

*** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.

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